Gastroesophageal Reflux Disease (GERD)

What Is It?

Gastroesophageal reflux (GERD) is a condition known by a variety of names, often referred to as acid reflux, chronic heartburn or acid indigestion. These terms are frequently used in advertisements to get you to buy the latest pill or tablet guaranteed to ease your pain. But if you are experiencing discomfort on a regular basis, the recurring sensation of heartburn is likely a symptom of a larger problem.

GERD is a digestive disorder in which partially digested food from the stomach, along with hydrochloric acid (HCl) and enzymes, backs up into the esophagus. This process is known as reflux.

HCl has a very low pH, meaning that it is very acidic. Even if present in low amounts, HCl can cause damage when it comes into contact with the delicate lining of the esophagus. This mucous lining, or mucosa, of the esophagus, unlike the lining of the stomach, is not designed to withstand the caustic effects of acid and stomach contents.

Definitions of some conditions that involve reflux are listed below. Some of these terms are used interchangeably.

To clarify:

• **Heartburn** – painful burning sensation in the esophagus usually associated with the regurgitation of stomach contents

• **Acid indigestion** – another name for heartburn

• **GERD** – chronic heartburn - usually defined as two or more times per week

• **Reflux esophagitis** – an inflammation of the lining of the esophagus that has been caused by the backflow of stomach acid or contents into the esophagus

What Causes It?

Normally the lower esophageal sphincter (LES), the muscle that connects the esophagus to the upper portion of the stomach, opens to allow food from the esophagus into the stomach; then it closes immediately to prevent food and digestive stomach secretions from reentering the esophagus.

Reflux occurs when the LES weakens and malfunctions, staying open after food has entered the stomach, and allowing the contents of the stomach to flow backwards into the esophagus. This LES weakness causes GERD. But what causes the LES to weaken?

A hiatal hernia is one condition that weakens the LES and causes reflux. A hiatal hernia occurs when a portion of the stomach protrudes into the chest cavity through a small opening in the diaphragm, the muscle separating the abdomen from the chest wall. (See the Hiatal Hernia section for more information on this condition.)

There are also a number of dietary and lifestyle factors that may contribute to esophageal irritation and a weakened LES. These include:

• Overeating
• Eating too rapidly
• Inadequate chewing
• Swallowing large amounts of air when eating
• Overweight/obesity
Intra-abdominal pressure weakens the LES, and may be caused by bending from the waist; heavy lifting; straining at stool; pregnancy and obesity, especially abdominal obesity or belly fat.¹

Smoking inhibits production of saliva, salivary IgA (a protective antibody) and salivary epithelial growth factor (SEGF), which helps repair the intestinal lining. Both IgA and SEGF serve as protective barriers against damage to the esophagus. Smoking also weakens the LES.

NSAIDs (like aspirin, ibuprofen and naproxen), bronchodilating drugs used to treat asthma (like theophylline, albuterol, ephedrine), some blood pressure medications (calcium channel blockers, beta blockers), diazepam and nitroglycerine relax all muscles in the body, including the LES, in the esophagus.²

When food is eaten too quickly, the stomach becomes distended, and the food is pushed against the top of the stomach. This can force open the LES, and wash the food into the esophagus causing heartburn. This discomfort occurs from the partially digested food, gastric acid, enzymes and bacteria on the food, which can, at times, reach as high as the throat and windpipe, and occasionally cause aspiration pneumonia.

Swallowing air while eating—common when eating quickly or in an anxious state—warms the air to body temperature, which then expands, and is belched forcefully enough to push stomach acid into the esophagus causing heartburn.
Because estrogens can weaken the LES, women who are pregnant, taking birth control pills or estrogen replacement therapy are more likely to suffer from heartburn than those who are not. More than 25 percent of pregnant women experience daily heartburn, and more than 50 percent have occasional distress.

Other factors that can contribute to GERD are:

• Ulcers
• Food allergies and sensitivities, especially to wheat and dairy
• Gallbladder problems
• Enzyme deficiencies

It has been commonly accepted by the medical profession that heartburn and GERD are caused, solely, by excess stomach acid (hyperchlorhydria). Virtually all drugs used to treat GERD neutralize, reduce, suppress or inhibit HCl production.

This is very interesting in view of the fact that the 11th edition of the “Merck Manual,” published in 1966, states quite clearly that “[heartburn] is not due, as formerly believed, to excessive gastric acidity per se, as the same symptom often occurs in achlorhydria [absence of stomach acid].” The bottom line is that heartburn and GERD are more often caused by deficiency or lack of HCl than by too much of it. Interestingly, both hypochlorhydria and hyperchlorhydria produce the same symptoms—a heartburn-like sensation that is sometimes accompanied by bloating and stomach pain.

Hypochlorhydria, or low HCl production, is more common than most people realize. With age, the production of stomach acid decreases. It has been estimated that between 30 and 50 percent of people over 60 do not produce enough stomach acid. To support healthy digestion, the stomach needs enough HCl to begin the breakdown of protein and activate pepsin, a protein-digesting enzyme found in the stomach.

Although it is difficult to comprehend taking acid to relieve heartburn, additional HCl helps the stomach to properly digest food, which ultimately helps to prevent putrefaction (the decomposition of animal proteins), a cause of gas production, reflux and heartburn.

So what causes low HCl production? Low HCl production can result from a deficiency of vitamin A and B complex, as well as from a low intake of protein. Chronic stress and zinc deficiency are other factors that may result in suppression of stomach acid. Low-salt diets may also contribute to HCl deficiency, as sodium and chloride are needed for HCl production.

HCl deficiency has some far-reaching consequences as far as overall health is concerned. The HCl deficiency causes electrolyte deficiency, which in turn inhibits enzyme production. The net result is poor metabolism of nutrients, disruption of homeostasis and development of degenerative disease conditions.

The most important step for people with GERD is to determine whether they have hypochlorhydria, or hyperchlorhydria. From there, the treatments are very

Did You Know

Because some calcium-based acid neutralizers are advertised as beneficial sources of supplemental calcium, some consumers, especially elderly women, overuse them in an effort to stave off osteoporosis. Ironically, the calcium contained in these products is calcium carbonate, an inorganic form of the mineral that is very poorly absorbed because it neutralizes HCl needed for its utilization. Because calcium requires an acid environment in order to be properly absorbed by the body, the carbonates, because they have an alkalinizing effect, are a very poor dietary source of the mineral.
GERD is also common in infants. GERD may result in the frequent vomiting or spitting up that some infants experience. Usually reflux in babies is due to a poorly coordinated GI tract, although it can also be caused by a food allergy (usually to cow’s milk, soy or wheat protein), or even poor feeding position. By the age of 1, most infants grow out of it when their digestive tracts mature.

Unfortunately, even infants are prescribed proton-pump inhibitors (PPIs). A recent study that investigated the effects of PPIs on infants found that they were no more beneficial than placebo. What’s more, the rate of lower respiratory tract infections was higher in the infants taking PPIs.

In older children, GERD occurs for the same reason as in adults: the LES does not close properly. Factors such as obesity (a growing problem with today’s youth), overeating, certain foods, beverages and medications may contribute to the development of GERD.

In children, as in adults, it may be more prudent to look at diet and other factors surrounding eating habits before medications are used. Interestingly, symptoms of GERD in infants may be indistinguishable from food allergies.

**What Are the Signs and Symptoms?**

With GERD the amount and frequency of reflux differs from individual to individual as does the degree of the acidity of the stomach contents that are being regurgitated into the esophagus. Therefore, one person with GERD may have mild symptoms while another could have severe symptoms. Along with reflux usually comes heartburn (in 70 to 85 percent of cases). Other signs and symptoms of GERD may include:

- Chronic sore throat
- Nausea
- Vomiting of blood (which may lead to anemia)

While chronic heartburn can strike anyone at any age, it is more common in older people than in younger people. It is interesting that low HCl production also occurs more often in older people.

In addition, some people experience silent GERD, which does not produce the characteristic heartburn pain, but instead is associated with symptoms such as:

- Chronic cough, worse at night
- Inflammation of the gums
- Erosion of tooth enamel
- Bad breath
- Chronic throat irritation
- Hoarseness in the morning

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- Regurgitation
- Angina-like chest pain
- Dysphagia (difficulty swallowing)
- Bronchial spasms with asthma
- Laryngitis (voice problems—hoarseness)
- Shortness of breath
- Belching/bloating/gas
- A sense of fullness after eating (especially in conjunction with a chronic cough)
- Abdominal distention after eating
Not all people with GERD will experience all of these signs and symptoms. All GERD patients have reflux, but not all have burning, bloating and/or nausea.\(^{13}\)

Bloating and gas, when present, can be the result of swallowing air, undigested food being acted upon by bacteria, overeating or delayed gastric emptying. The stomach expands from gas, which travels up toward the esophagus, pushing HCl with it.

The resulting heartburn is caused, not by too much HCl, but by stomach contents, including undigested food, pathogens and even very low amounts of stomach acid that is in the wrong place—the esophagus instead of the stomach.

It is important to note that many of the symptoms listed above may be indicators of other problems. For this reason, and because GERD can lead to the more serious Barrett’s esophagus (covered extensively at the beginning of this chapter), or, for a small percentage of people, even cancer, physicians will often perform tests to establish a definitive diagnosis.

### How Is It Diagnosed?

Unfortunately GERD is not usually diagnosed. Upon the presence of recurrent heartburn symptoms reported by the patient, the doctor may treat the symptoms with medication without performing any tests. Standard tests are available, however, and can help to determine the presence of reflux in the esophagus:

- Double-contrast endoscopy showing evidence of burning
- Biopsy confirmation

While these tests are used for diagnosing GERD, actual measurements of stomach acid production are not routinely done.

Recognizing that low stomach acid may play an important role in GERD, the progressive physician may do a gastric analysis to measure the stomach’s acid-secreting capacity by testing the level of gastrin. The Heidelberg pH Diagnostic System, which does provide the actual measurements of stomach acid production, is very helpful in determining how to approach the treatment of GERD. (See the Appendix.) This test involves swallowing a “Heidelberg capsule,” which contains a tiny pH sensor and radio transmitter. Then a series of bicarbonate challenges is introduced to see how quickly the pH changes from alkaline to acid.

Another test that may be ordered by a holistic physician is a comprehensive stool analysis (CSA). (See the Appendix.)

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**Did You Know**

The use of proton pump inhibitors (PPIs) has been associated with:

- Increased risk of Clostridium difficile (C. diff) associated disease\(^ {15,16}\)
- Development of esophageal candidiasis\(^ {17}\)
- Osteoporosis-related bone fractures\(^ {18,19}\)
- Community- and hospital-acquired pneumonia\(^ {20}\)
- Vitamin B12 deficiency\(^ {21}\)
- Spontaneous bacterial peritonitis\(^ {22}\)
- Increased upper GI tract permeability (“leaky esophagus”)\(^ {23}\)

Because PPI use leads to hypochlorhydria, bacterial overgrowth and acetaldehyde production, long-term use is potentially a risk factor for gastric and cardiac cancers.\(^ {24}\)

It has been determined that acid-reducing medicines lead to dependency.\(^ {25}\) This happens because, when the medication is discontinued, the GERD symptoms return.
Elevated levels of vegetable and meat fibers (especially meat) present in this stool analysis may be yet another indicator of insufficient HCl production.

The CSA also gives information about the levels of digestive enzymes, the degree of fat digestion and the microbial balance of the gut. This test can potentially identify problems not detected by standard GI tests, which are designed solely to identify structural, not functional problems.

What Is the Standard Medical Treatment?

For GERD, the hallmark of standard medical treatment is the routine use of acid-suppressing drugs to neutralize or suppress stomach acid production. The thinking, with regard to use of such drugs, is that by reducing acid production or neutralizing it, irritation to the esophagus will be minimized. Such thinking has given rise to widespread use of acid-suppressing drugs to treat GERD.

These acid-suppressing drugs may be divided into two categories:

• Acid neutralizers
• Acid blockers

Acid Neutralizers

Acid-neutralizing drugs are alkalis, meaning they have an extremely alkaline (high) pH. Their active ingredients are mineral salts such as calcium, sodium, aluminum or magnesium. These minerals form a neutral salt upon contact with stomach acid, increasing the pH and reducing acidity.

Their effects are temporary. They do not halt the stomach’s production of HCl. Acid neutralizing products are available over-the-counter without prescription. While their occasional use for isolated bouts of heartburn might not do much harm, habitual use can pose some serious problems.

Most serious of the potential problems is a syndrome called milk-alkali syndrome, characterized by excess calcium in the blood. This syndrome gives rise to a condition known as alkalosis (elevated blood pH), and to kidney failure. Milk-alkali syndrome may result from over-consumption of milk (which is high in the alkaline mineral calcium) along with the use of antacids over a long period of time. But it can also occur when no milk is consumed if calcium-based acid neutralizers are used habitually or excessively.

An illustration showing the location of the lower esophageal sphinctor (LES)
Some acid-neutralizing drugs contain aluminum, which poses an additional problem. This metal has been shown to be a possible cause of such brain dementias as Alzheimer’s disease. It would therefore be advisable to avoid long-term use of aluminum-containing antacids.

Acid Blockers

There are two groups of acid-blocking drugs: histamine H2-receptor blockers (H2-blockers) and proton pump inhibitors (PPIs). H2-blockers prevent acid secretion by blocking the action of histamine. Histamine signals acid-producing cells to secrete HCl upon command of the hormone gastrin.

These drugs were originally developed to treat peptic ulcers, but came to be widely used to treat GERD instead when it was found that the bacteria H. pylori, not excess HCl, causes ulcers. H2-blockers can shut off acid flow for hours at a time but, like many other drugs, they have some serious side effects including GI disturbances such as:

- Constipation
- Diarrhea
- Nausea
- Vomiting
- Heartburn (the very condition they’re prescribed to treat)

Proton pump inhibitors (PPIs) are the strongest of the acid-blocking drugs. They block the action of the proton pump, the HCl producing and secreting mechanism inside cells in the stomach lining. Long-term use of PPIs is associated with health consequences such as increased risk of pneumonia and Clostridium difficile infections, osteoporosis-related bone fracture, nutrient malabsorption and more. These medications lead to dependency and, once their use is stopped, a rebound effect can result in a problem that is worse than when it began.

When a person with low stomach acid is treated with acid-blocking medications for heartburn, obviously the hypochlorhydria is exacerbated. And since inadequate HCl production is more often the cause of GERD than is excessive acid production, the problem is often made worse with the treatment.

Even if the lack of stomach acid was not a problem before treatment with acid-blocking medication, it can become one afterward. While they may provide short-term relief of heartburn, strong acid-blockers, when used habitually, continually block the natural production of HCl. This knocks out one of the functions of stomach acid: to sterilize food before it enters the intestinal tract. Uncontrolled growth of every kind of microbe in the stomach, including yeast and Helicobacter pylori (H. pylori), the bacteria associated with gastric ulcers, can result.
Problems with Long-Term Use of Acid-Suppressing Medications

Decreased HCl = Hypochlorhydria
(Often, hypochlorhydria exists even before acid suppressors are taken.)

Decreased pepsin
(protein-digesting enzyme)

Pathogenic microorganisms not destroyed by stomach acid

Many nutrients not absorbed
B12, Zn, Mg, Ca
(acid needed for absorption)

Proteins not properly digested

Food sensitivities (from undigested proteins)

Digestive symptoms (heartburn, upset stomach)

Increased pneumonia

Increased C. difficile infections

Increased H. pylori

Increased Candida overgrowth

Increased susceptibility to many chronic diseases

Leaky Gut

Increased intestinal inflammation

Systemic Inflammation
- Depression
- Cardiovascular disease
- Skin conditions
- Asthma

Autoimmunity
- Celiac disease
- Thyroid dysfunction
- Fibromyalgia
- Chronic fatigue syndrome
Hydrochloric acid is one of nature's most essential antibiotics. Imagine a scenario where a patient with virtually no stomach acid production eats a salad and is incapable of destroying the bacteria present on all the raw vegetables. While acid-suppressing drugs may offer temporary relief of the symptoms of heartburn, they create many major problems. By alkalizing the lower stomach (the antrum), the hormone gastrin is released causing a huge rebound output of acid. This rebound requires more acid-suppressors to neutralize the increased acid output in response to the gastrin.

Also important to note, acid-suppressors create conditions conducive to yeast and fungus growth. They can also mask symptoms of an ulcer, or even cancer of the stomach or esophagus.

Eventually the parietal cell mass that manufactures the acid ceases to function normally, resulting in low stomach acid (hypochlorhydria), or worse, no stomach acid (achlorhydria), which elevates the risk of stomach cancer. While there is no outright proof that use of acid-suppressing drugs causes cancer, it is predicted that at least some of these drugs will be found to increase cancer risk, particularly when taken for a long time.

Motility-Enhancing Drugs

Because GERD is also considered to be a motility problem, motility-enhancing drugs may also be prescribed. They help strengthen the LES and move food through the stomach more rapidly. This certainly makes more physiological sense than suppressing acid production.

However, profound adverse side effects have limited the use of these drugs. For example, after a few years of clinical use, the FDA took one of the most potent motility enhancers off the market when it was found to cause heart failure.

Other Treatments

Should drugs and lifestyle/dietary adjustments fail to control symptoms of GERD, a physician may suggest surgery. A procedure known as fundoplication involves wrapping part of the stomach around the lower esophagus to strengthen the LES. This can be done laparoscopically with good results. Non-surgical alternatives are also available. Endoluminal therapy involves the use of an endoscope to tighten the junction between the esophagus and stomach with sutures. Radiofrequency therapy delivers energy waves to the muscles of the stomach and esophagus, which may have the ability to improve the function of the lower esophageal sphincter.
I have seen many patients who, after occasional episodes of heartburn, have been put on acid-blocking medications for indefinite periods of time. Often, I have found that if they will lose a little weight, improve their bowel function, eliminate foods that lower their esophageal sphincter pressure, remove sensitive foods and change their eating habits as mentioned in this chapter, they can get off of their medications. Since these medications can have significant and potentially serious side effects, it is wise to minimize their use. Implementation of more natural and safer nutritional options should be undertaken whenever possible.

I would like to point out that all esophageal conditions mentioned in this chapter, namely Barrett’s esophagus, esophagitis, GERD, heartburn and hiatal hernia, have features in common that could be addressed from a nutritional standpoint:

- Material from the stomach periodically enters into the esophagus. This often causes an inflammatory reaction and can damage the esophageal lining. Researchers have recently observed that the damage to the lining may be more due to esophageal intracellular oxidative stress than to the direct contact of the acid and gastric contents. There are articles in the literature that support the fact that adequate antioxidant levels are protective against damage from reflux (Gut 2001;49:364-371). In this article, it was shown that pretreatment with antioxidants minimized damage and decreased the inflammatory markers (malondialdehyde and NF kappa B). In addition, the antioxidants slowed down the loss of glutathione (a naturally produced beneficial antioxidant). It would be wise to supplement with vitamins A, C, E, and the minerals zinc and selenium.

- Mucus production has been shown to be variable, and people with lower levels tend to have more inflammatory problems in the esophagus and stomach. Normalizing cellular function with glutamine, glycine, and omega-3 essential fatty acids can be helpful. Mucus-producing nutrients (N-acetyl glucosamine, N-acetyl-galactosamine, fucose, galactose and sialic acid) and increased water intake are needed to make high quality and quantity of mucus. There is a good review article about probiotics and mucus and their role in intestinal health in the American Journal of Clinical Nutrition, 2003;78: 675-683.

Minimizing the possibility of inflammation is important. Checking for any type of infection, especially H. pylori or Candida, can be helpful; if found, short courses of appropriate anti-microbials should be implemented. After removal of pathogens, restoration of the beneficial bacteria (Lactobacilli and Bifidobacteria) is very important and may help prevent future infections. Liquid aloe vera has potent anti-inflammatory benefits as well.

**Common Signs & Symptoms of Low Gastric Acidity**
(often diagnosed as high gastric acid)

- A sense of fullness after eating
- Acne
- Bloating, belching, burning and flatulence immediately after meals
- Chronic Candida infections
- Chronic intestinal parasites or abnormal flora
- Dilated blood vessels in the cheeks and nose
- Indigestion, diarrhea or constipation
- Iron deficiency
- Itching around the rectum
- Multiple food allergies
- Nausea after taking supplements
- Undigested food in the stool
- Upper digestive tract gassiness
- Weak, peeling and cracked fingernails

From Encyclopedia of Natural Medicine, Revised 2nd edition by Michael Murray, ND & Joseph Pizzorno, ND
Brenda’s Bottom Line

The condition of GERD causes distress to many people. Unfortunately, it can be a bit complicated because our traditional doctors do not take the necessary steps to find out why a person has GERD in the first place.

In cases where the patient is persistent about finding the underlying cause, the doctor will test for H. pylori infection. If found, antibiotics are given to treat the bacteria and acid-blocking medication to heal stomach irritation or ulcers. Other than recommending basic dietary and lifestyle changes, in traditional medicine the search for the underlying cause is over. The doctor does not heal the gut afterwards with nutrients like L-glutamine, NAG (N-acetyl D glucosamine) and gamma oryzanol, nor does he know to replace the good bacteria that were destroyed by the powerful antibiotic.

Acid-blocking medication was originally developed for short-term treatment of gut irritation. If this were the only case in which people were given these drugs, it may not have escalated to the point it is today. If you go to a GI doctor with a symptom of heartburn, gas, bloating or even irritable bowel syndrome (IBS), they hand out these acid-blocking medications like they were candy with no testing to determine whether stomach acid is even the main problem!

People are kept on acid-blocking medication for years, which sets the stage for the development of serious health conditions down the road. Recent studies clearly show that these medications are over prescribed more than 53 percent of the time.

We have watched the pharmaceutical industry wreak havoc on our bodies with the over-prescription of antibiotics. And now we can see another travesty unfold with the use of long-term acid-blocking medications putting the health of the individual in jeopardy. Instead of pulling out the prescription pad and writing another prescription, the doctor should be looking for the underlying causes. The Heidelberg pH test should be in every GI doctor’s office, and this nonsense could stop. If you have GERD and are on acid-blocking medication long term, go to your doctor and tell him you are aware of the dangers and want to be taken off the medication. You can be carefully weaned off these drugs. Then follow the protocol that follows.

In my experience, people who have these kinds of digestive problems have an underlying digestive issue in addition to stomach acid levels. If you have been on acid blockers long term, the chances that you have Candida overgrowth and other imbalances throughout the gut are highly probable.

Recommended Testing

- Stool test for Candida or parasites (See the Appendix.)
- HCl test (See the Heidelberg test in the Appendix.)
- Food sensitivity test if suspected (See the Appendix.)

Diet

- Follow the Fiber 35 Eating Plan found in the Appendix of this book. A high-fiber breakfast is important.
- If you suspect Candida overgrowth is an issue, follow the Candida Diet found in the Appendix.
- Some research suggests that a gluten-free diet can be useful in reducing GERD symptoms.
- Chew foods well, to mush or liquid, before swallowing.

Lifestyle

- Sleep on your left side to avoid heartburn and reflux.
- Do not lie down for at least three to four hours after eating.
- Elevate the head of the bed four to eight inches when sleeping.
- Make sure you have good bowel elimination daily.

Complementary Mind/Body Therapies

- Stress-reduction therapies such as yoga, biofeedback, massage, and meditation will be helpful.
- Acupuncture may be helpful as it targets the meridians associated with the digestive system.
- Chiropractic may be beneficial.
- Colon hydrotherapy should be considered.
<table>
<thead>
<tr>
<th>Recommended Nutraceuticals</th>
<th>Dosage</th>
<th>Benefit</th>
<th>Comments</th>
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<tbody>
<tr>
<td><strong>Critical Phase</strong></td>
<td></td>
<td></td>
<td>Daily maintenance recommendations should also be taken during this phase unless otherwise indicated.</td>
</tr>
<tr>
<td>L-Glutamine Powder with Gamma Oryzanol</td>
<td>5 grams (5000 mg) daily on empty stomach with water</td>
<td>Helps repair the esophageal lining and reduce inflammation.</td>
<td>Best if taken in powder form for contact with esophageal lining.</td>
</tr>
<tr>
<td>Probiotics</td>
<td>200 billion culture count daily for two weeks</td>
<td>Stimulates immune system, reduces inflammation and protects digestive lining.</td>
<td>Best if taken in powder form for contact with digestive lining.</td>
</tr>
<tr>
<td>Natural Heartburn Formula</td>
<td>Chew only in acute situation. Do not use long term.</td>
<td>Temporarily reduces acid production.</td>
<td>Look for ingredients such as fava bean, ellagic acid, calcium, magnesium and aloe.</td>
</tr>
<tr>
<td><strong>Helpful</strong></td>
<td></td>
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</tr>
<tr>
<td>Antioxidant Supplement</td>
<td>Use as directed</td>
<td>Protects tissue from damage.</td>
<td>You can purchase a high potency antioxidant formulation from most health food stores.</td>
</tr>
<tr>
<td>Melatonin</td>
<td>3-5 mg at bedtime</td>
<td>Study shows may be an effective treatment for GERD.</td>
<td>Start with lower dosage and build up to 5 mg.</td>
</tr>
<tr>
<td><strong>Daily Maintenance</strong></td>
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<tr>
<td>Fiber</td>
<td>4-5 grams twice daily as part of a 35 gram daily fiber diet</td>
<td>Helps to reduce reflux and promotes digestive motility.</td>
<td>Look for a flax-based fiber with added ingredients such as glutamine, probiotics and healing herbs.</td>
</tr>
<tr>
<td>Probiotics</td>
<td>50 billion culture count daily after critical phase</td>
<td>Stimulates immune system, reduces inflammation and protects digestive lining.</td>
<td>Best taken in loose powder for contact with digestive lining. Open capsule if necessary.</td>
</tr>
<tr>
<td>Digestive Enzyme with HCl</td>
<td>1-2 capsules with every meal</td>
<td>Reduces fermentation, pressure and replaces low HCl, helps tighten LES.</td>
<td>Do not use HCl if ulcer or stomach irritation is present. Switch to enzyme without HCl.</td>
</tr>
<tr>
<td>Omega-3 Fatty Acids</td>
<td>2 grams daily</td>
<td>Reduces inflammation.</td>
<td>Get a concentrated, enteric coated high dose EPA/DHA formulation.</td>
</tr>
</tbody>
</table>

See further explanation of supplements in the Appendix
See the Appendix for a protocol on weaning off of long-term acid blocking medication